SEC.626

II. Rejection Under 35 USC §102

Claims 1, 7 and 14 remain rejected under 35 USC 102 as being anticipated by USP 5,821,152 to Han et al.

Initially, the Examiner's attention is directed to the attached graphs of pages A-1 and A-2. Graph (1) of page A-1 shows the relation between ambient temperature and time according to the present invention, and Graph (2) of page A-1 shows the relation between substrate temperature and time according to the present invention. Graph (1) of page A-2 shows the relation between ambient temperature and time according to Han et al., and Graph (2) of page A-2 shows the relation between substrate temperature and time according to Han et al.

In traversing the rejection, Applicants previously argued that

> The reference to Han et al. relied on by the Examiner is no different from Applicant's admitted prior art method of forming HSGs using a warm reaction chamber. As explained in detail in Applicant's original specification, in such a prior art technique, the source of the HSGs, i.e., the source gas, is introduced into the reaction chamber only after the ambient temperature of the reaction chamber is stabilized (page 4, lines 7 - 11).
>
> Han et al. teach, at col. 4, lines 12 - 22, that the temperature of the reaction chamber is brought up to 570° to 600° C., the temperature of the chamber is **then** stabilized, and "[a] silicon source gas is **then** injected into the chamber so that silicon crystal nuclei are selectively formed" (emphasis supplied). And, although the Examiner alludes to Fig. 6 of Han et al., this figure clearly shows a step 300 of forming the silicon crystal nuclei after the step 250 of stabilizing the temperature of the reaction chamber. Han et al. make it quite clear, through their written description and drawings, that their warm wall technique involves the temperature of the reaction chamber being stabilized before any source gas is introduced into the chamber.
>
> On the other hand, claims 1 and 14 are distinguishable from



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> the Han et al. patent by requiring steps of forming HSG nuclei by introducing the source gas into the reacting chamber while the ambient temperature is stabilizing. Likewise, claim 7 distinguishes over the Han et al. patent by reciting a step of introducing source gas into the ambient to form hemispherical sections while a temperature of the substrate is stabilizing. Accordingly, the Han et al. patent can not anticipate claim 1, claim 7 or claim 14 under 35 USC 102.

The Examiner's response to Applicants' argument is that because "the temperature within a system is always fluctuating when gas is introduced " the introduction of the source gas in Han et al. can be considered as occurring while the temperature of the reacting chamber ambient is stabilizing.

Such a position is untenable because (1) it is factually unsupported and (2) it represents an improper interpretation of the term "stabilizing".

In rejecting a claim under 35 USC 102, it is axiomatic that the burden of proof rests on the Examiner to show that the limitations recited in the claims are either expressly disclosed in or inherent from the prior art. The Examiner has not met her burden in establishing the inherence of Applicants' claims in the method disclosed by Han et al. More specifically, **the Examiner provides no evidence or reasoning** (sound or otherwise) as to why the temperature in the type of reacting chamber disclosed by Han et al. fluctuates significantly during the time the source gas is being introduced.

The rejection should not be maintained in the face of such a lack of evidence or reasoning, particularly because the basis for the rejection is seemingly contradicted by the record. First, Applicants' specification discloses that in the prior art technique closest to that of the present invnetion, the temperature is for all intents and purposes constant while the source gas is

being introduced . See Fig. 3 (particularly time period T2') and the description thereof in Applicants' specification beginning at page 3, line 4. Second, the Han et al. patent only discloses that the source gas for seeding is injected "at a first temperature" (col. 3, lines 15 - 17). Third, even Tatsumi et al. speak of a "constant" temperature being maintained during the time in which source gas is being introduced (col . 7, lines 14 - 50). The record, and in particular, the prior art reference relied on by the Examiner, fails to provide support for the existence of the so-called temperature fluctuations which the Examiner has used as the basis for rejecting Applicants' claims under 35 USC 102.

Nonetheless, **even if the temperature fluctuates minutely during the time that the HSG source gas is being introduced, such minute temperature fluctuations can not reasonably construed as being part of the time during which the temperature of a reacting chamber is "stabilizing".**

" During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification' ". MPEP 2111. The Examiner's interpretation of the term "while the temperature of the reacting chamber ambient is stabilizing" to include a time when the aim is to keep the temperature of the reacting chamber constant, is clearly inconsistent with Applicants' specification. That is, there can be no doubt that when Applicants drafted their specification and claims, the term "while an ambient temperature stabilizes" was used in order to specifically preclude what is described in both the specification concerning the admitted prior art and in the commonly assigned Han et al. patent itself as "a predetermined period of time" in which the temperature of the reaction chamber "is stabilized" (col. 4, lines

14 - 16 in Han et al.). For these reasons, the Examiner's interpretation of the meaning of the claimed term "stabilizing", as referenced to a temperature condition, can not be said to be consistent with the specification.

Even if the Examiner is inclined to consider the term "stabilizing" to be given no definition in the specification, the Examiner must still attribute the same "plain meaning" to the term given to it by those of ordinary skill in the art. See MPEP 2111.01 citing In re Sneed, 710 F.2d 1544, 218 USPQ 385 (Fed. Cir. 1983). The Examiner's interpretation of the terminology "stabilizing", as referenced to the temperature condition of the ambient within a reacting chamber, is patently inconsistent with the plain meaning that would be given to such terminology by those skilled in the art, including the patentee of the very reference (Han et al.) cited by the Examiner himself.

III. The Rejection Under 35 USC §103

The same comments above apply to the rejection under 35 USC 103 relying in part of the Tatsumi et al reference. That is , Tatsumi et al. , like Han et al., teach a warm wall reaction chamber technique in which the temperature is stabilized before the source gas of the HSG is introduced. At col. 6, lines 33 - 38 Tatsumi et al. state that the substrate is heated to a constant temperature, "... and then, by supplying $Si_2H_6$ to the forming chamber ... nuclei ... are generated" (again, emphasis supplied). Thus, Tatsumi et al. also fail to suggest the subject matter of claims 1, 7 and 14.

In the last response, Applicants also expended time and effort in arguing the rejection of claims 2, 10 and 15. The Office Action includes no response to these arguments. MPEP 707.07(f) states the "[w]here the

Applicant traverses any rejection, the examiner should, if he or she repeats the rejection, ... answer the substance of it". Applicants thus feel that they have no choice but to reiterate their traversal of the rejection under 35 USC 103 and strongly request that the Examiner answer the substance of these arguments (to place the case in better condition for an appeal) or withdraw the rejection.

Claims 1, 7 and 14 call for forming a second HSG nuclei or hemispherical section over the first HSG nuclei or hemispherical section by introducing a second source gas after the ambient temperature (claims 1 and 14) or the substrate temperature (claim 7) stabilizes. **Each of dependent claims 2, 10 and 15** call for the amount of source gas introduced during this step to be larger than the amount of source gas introduced during the period while the temperature is stabilizing. Neither the Han et al. nor the Tatsumi et al. methods involve introducing source gas during these two discrete time periods, i.e., the period during which the temperature is stabilizing and the period after the temperature has stabilized. The present invention thus represents a difference in kind over what is taught by the references and as such, the references do not render obvious at least the subject matter of claims 1, 2, 7, 10, 14 and 15.

IV. Conclusion

Because the Examiner has not shown that all of Applicants' claim limitations are inherent from the disclosure of Han et al. and because of the significant differences between Applicants' claims, when properly interpreted, and the disclosure of Han et al., including the absence in the Han et al.

method of a step of introducing HSG source gas while the temperature of the ambient or the temperature of the substrate is stabilizing, it is seen that the reference does not anticipate Applicants' claims 1, 7 and 14 under 35 USC 102. Moreover, because the references to Han et al. and/or Tatsumi fail to suggest such a step, the references can not render obvious the subject matter of Applicants' under 35 USC 103 when such subject matter is considered as a whole. Accordingly, early reconsideration and allowance of the claims are respectfully requested.

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact the undersigned at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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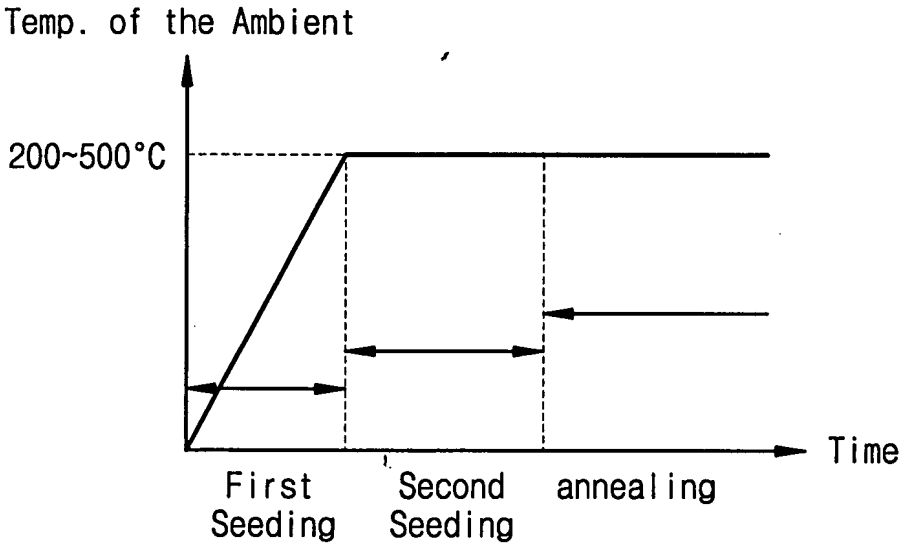
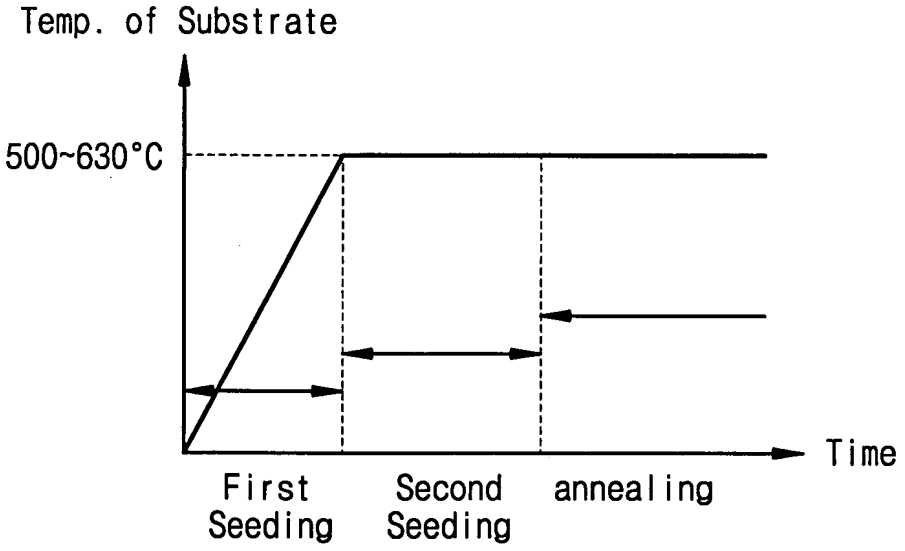
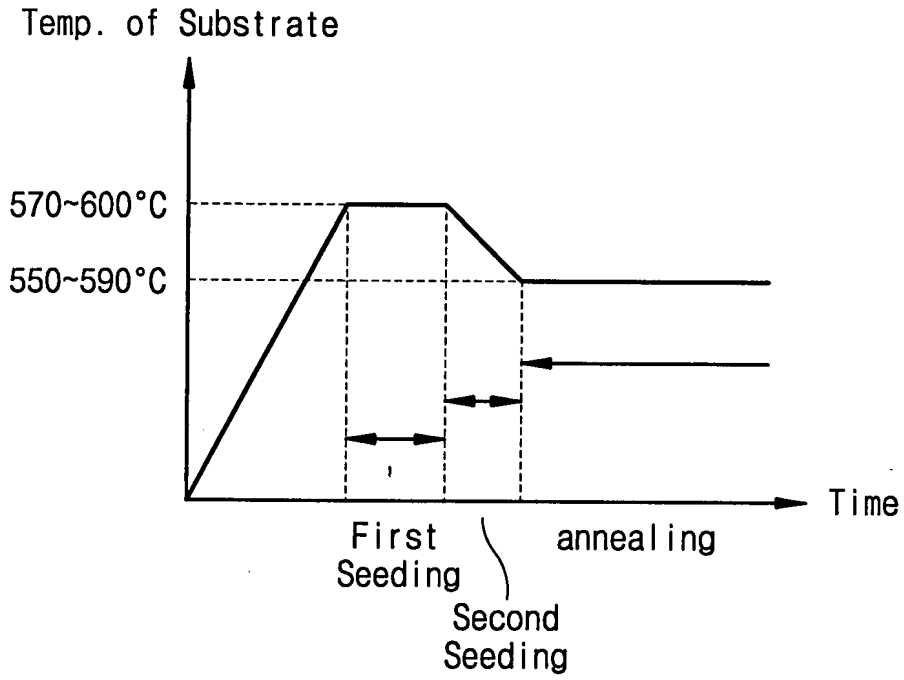
The Present Invention (1)




The Present Invention (2)



Han et al. (1)




Han et al. (2)